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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of)
William Hein, et al.)
App. Number: 10/688,584)
Filed: 10/17/2003)
For: Microwave Drier)

Date: September 6, 2005
Group Art Number: 3742
Examiner: Philip Leung

APPELLANTS' BRIEF

This appeal is based upon the Office Action of the Examiner dated 11/23/2005 which indicated it was a final action and rejected all of the pending claims of the application and any other basis allowed by law.

1. Real Party in Interest

Appellants are the real parties in interest and rights to the invention have not been assigned.

2. Related Appeals and Interferences

None

3. Status of Claims

The application originally included 11 claims. Although none of the claims have been amended as to substance, three claims, 7, 10, and 11, were canceled at the request of the Examiner. A copy of the claims involved in this appeal is attached hereto and incorporated herewith as Appendix A.

4. Status of Amendments

The only amendment to the specification was the amendment of the title: Microwave Dryer With Ram For Material Movement.

This amendment was not subsequent to a final rejection and there have been no amendments subsequent to a final rejection.

5. Summary of the Claimed Invention

The microwave dryer of the instant invention comprises a loading section 2, a treatment section 4, and an unloading section 6 (pg 4, line 17). The sections are designed to be modular such that several treatment sections may be connected in line to treat a greater amount of sludge (pg 9, lines 20-25). In addition, sections may be stacked such that, for example, three treatment

sections could be stacked vertically with complementary loading and unloading sections to treat roughly three times as much sludge as in a single treatment section in the same amount of space (pg 5, lines 13-21).

A loading section 2 is provided which includes a hopper 8 on the top of the section into which untreated sludge may be introduced by a conveyor or other conventional means (pg 4, lines 20 and 21). The sludge drops into a loading channel 10 which has a half-cylinder bottom and vertical side walls (pg 4, lines 20-22). A hydraulically operated, reciprocating ram 12 is provided which pushes the sludge from the loading section 2 into a treatment channel 14 within the treatment section 4 (pg 4, lines 23-25). A plurality of microwave guides 20 which are covered with a microwave transparent cover open into the interior of the treatment channel 14 (pg 4, lines 29 and 30). Microwaves are emitted from the guides and heat the sludge as it passes through the treatment section (pg 4, line 30 and pg 5 line 1). Air is introduced into the downstream end of the treatment section 4. The air passes over the sludge in the treatment section 4, picks up the water which is driven from the sludge by the microwaves, and is extracted from the treatment section near the upstream end of the treatment section. The water may then be removed from the air by a condenser or other conventional means (pg 5, lines 1-5).

The sludge is then forced by the reciprocating ram from the treatment section 2 into the unloading section 6 (pg 5, lines 6 and 7). If the microwave dryer is configured on a single level, the treated sludge is removed from the bottom, downstream end of the unloading section by a conventional auger (pg 5, line 19). If the dryer is configured on multiple levels, the sludge drops down a chute into a second loading section where a second reciprocation ram pushes the sludge through a second treatment section in the opposite direction as it was pushed through the first treatment section (pg 5, lines 13-21).

The various loading section channels, treatment section channels, and unloading section channels are affixed to each other and all ride on hydraulic lifts such that the slope of the channels may be adjusted to change the flow rate of the sludge and separated liquids through the various sections (pg 6, lines 28-30 and pg 7, lines 1-8). Sensors are placed at various points along the sludge stream to monitor the temperature and the amount of water in the channels (pg 7, lines 9-22).

6. Issues

(1) Is claim 1 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020)?

(2) Is claim 2 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020)?

(3) Is claim 3 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

(4) Is claim 4 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

(5) Is claim 5 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

(6) Is claim 6 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

(7) Is claim 8 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

(8) Is claim 9 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

7. Argument

(1) Is claim 1 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020)?

As indicated by the Examiner section 35 U.S.C. 103(a) is the basis for all obviousness rejections set forth in the Office Action and provides:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject

matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Section 103(a) rejections have been examined in cases such as *Pentec, Inc. v. Graphic Controls Corp.*, 766 F.2d 309, 227 USPQ 766 (CAFC 1985); *In re Find*, 837 F.2d 1071, 5 USPQ2d 1596 (CAFC 1988); and *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (CAFC 1983), cert. denied, 469 US 851 (1984). These cases indicate that section 103 rejections must be determined by looking at the problem from the point of view of the inventor at the time of the invention and may not be based upon hindsight with the invention reconstructed based upon the a blueprint supplied by the applicant's claims. As indicated by the court in *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 227 USPQ 543, 551 (CAFC 1985) there must be some objective reason for making a combination of prior art references other than hindsight obtained from the invention itself.

Under a variety of other cases including *In re Laskowski*, 871 F.2d 115, 10 USPQ2d 1297 (CAFC 1989), *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (CAFC 1990), and *In re Lowry*, 32 F.3d 1579, 32 USPQ2d 1031 (CAFC 1994) it is not enough simply to find the elements of an invention in the prior art and to postulate that such a combination *could* occur. There must be some teaching or indication in the prior art that such a combination is desirable. Any rejection of claims is improper under section 103, if no teaching, suggestion, or incentive supporting the combination is found in the prior art. Also see MPEP Section 2143.01.

First, Appellants assert that even using Chauffoureaux as prior art in this case is inappropriate. In order to be considered as prior art for determining patentability under Section 103, the reference must be something which a person skilled in the art might ordinarily consider. The instant invention, Wear and the other references cited all relate to microwave heating or drying of a material. The instant invention and that in Wear are dryers. Gerling et al (US 4,326,114) is a coffee bean roaster. Chauffoureaux is, essentially, an extruder. The invention is described at Col 5, Line 41 as follows:

The polar polymer...is introduced into the hopper 5 and is forced by the screw 4 through the waveguide tubular component. As it travels through the waveguide, the material is heated by the microwave emitted by the generator 2 and is malaxated (evidently this means stirred) vigorously by means of the static

malaxation devices 7 and 8. The material, plasticised or gelled homogeneously in this way, is shaped by passing through the die 12.

That is, Chauffoureaux describes an extruder in which a polymer is heated and stirred in a chamber and then pushed through a die to create a desired shape. It seems very unlikely that an inventor looking at methods of drying would even think of looking at microwave devices, such as Chauffoureaux, which are extruders. Such an inventor or a person knowledgeable in the field would not think to equate an extruder with a dryer. Furthermore, the instant invention discloses a treatment section and “a plurality of microwave guides within said treatment section capable of directing microwaves from a microwave generator into the material within said treatment section.” In Chauffoureaux the entire tubular processor is a giant waveguide (Col. 2, Line 41). The instant invention has a plurality of waveguides within a treatment section. One invention has a processor which is a giant waveguide while the other has a plurality of waveguides within a treatment section. Because the basic concept, design, and function of the inventions are so dissimilar, it also seems highly unlikely that the inventor of the instant invention would consider Chauffoureaux. Why would an inventor contemplating sludge treatment with microwaves even think of looking at Chauffoureaux?

The Examiner characterizes Chauffoureaux as a microwave heating device including:

(1) a loading section 5' into which the material may be introduced using loading means; (2) a treatment section 1 which is in communication with the loading section 5; (3) an unloading section (the end portion of waveguide 1' at holes 13') which is in communication with the treatment section; (4) a reciprocating ram 17 within said loading section which is capable of pushing the material from said loading section into said treatment section and through said treatment section into said unloading section; (5) a microwave guide connecting a microwave generator 2' into the material within said treatment section 1'; and (6) unloading means (after the outlet of die 16) the die capable of removing the material from said unloading section; whereby material may be loaded into said loading section and pushed into said treatment section; the material treated by microwaves within said treatment section and the material removed from said unloading section by unloading means.

Under MPEP Section 2141.02 “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” Appellants assert that rather than break up the invention in Chauffoureaux into small pieces and

claim that the pieces are the same; Chauffoureaux and the instant invention should both be looked at as a whole to determine whether the instant invention is obvious. Chauffoureaux is an extruder which, basically, heats a polymer to a plastic state and pushes it through a die to create a particular desired shape. By the nature of extruders and an examination of the “malaxating devices” 7 and 8 in the Figures, it is clear that the waveguide tube in Chauffoureaux is intended to be completely filled with material and then for the material to be pushed through the die to create the desired shape. The instant invention wouldn't work if the treatment section were completely filled with material and the ram required to squeeze the material through the device as it must do in an extruder.

Appellants assert that it is not quite accurate for the Examiner to call “(3) an unloading section (the end portion of waveguide 1 at holes 13) which is in communication with the treatment section” an unloading section. The material is not “unloaded” until it is forced through the die and assumes the desired shape. It isn't ever proper to say the material is unloaded as it is actually extruded or shaped rather than being unloaded. It is also a stretch to say that the end portion of the waveguide is an unloading section at holes 13, because that isn't the function of holes 13. The function of the “plate possessing wide holes 13” (Col. 5, Line 39) is to electrically insulate the die 12 from the tubular waveguide.

Appellants further assert that it is unfair to characterize the reciprocating ram of the instant invention with “(4) a reciprocating ram 17 within said loading section which is capable of pushing the material from said loading section into said treatment section and through said treatment section into said unloading section”. Appellants believe the only references to a ram in Chauffoureaux are at column 2, line 60 “...it is possible to use a feed system employing a screw or a piston ram connected to a feed hopper” and column 5, line 52 “...instead of a screw drive, a piston ram drive 17 is provided for driving position 24.” After examination of Figure 2 and the specification, it is not clear what the description of a piston ram drive might be. Figure 2 appears to show a piston ram drive driving a screw. The meaning of “a piston ram drive 17 provided for driving position 24” is also very confusing. What can “driving position 24” mean? Claim 8 does refer to “a piston ram feed system,” but it is not clear what this might mean in light of the description in the body of the patent. Appellants assert that Chauffoureaux does not include a description of a reciprocating ram in a manner which would make the instant invention obvious.

If prior art is to be used to declare an invention obvious, the element found obvious should be described in the prior art clearly enough for an inventor to have been able to figure out what the prior art was describing.

The claims of the instant invention include “a plurality of microwave guides within said treatment section capable of directing microwaves from a microwave generator into the material within said treatment section.” The Examiner has equated this with “(5) a microwave guide connecting a microwave generator 2 into the material within said treatment section 1.”

Appellants assert that these elements are not similar, but very different and such differences make the instant invention unobvious. In the instant invention there is a plurality of microwave guides within a treatment section. In Chauffoureaux the processor is one giant waveguide. Appellants believe that function and concept of using a waveguide processor is very different than using a plurality of waveguides within a treatment section and such differences are the opposite of obvious.

The Examiner further equates “(6) unloading means (after the outlet of die 16) the die capable of removing the material from said unloading section” in Chauffoureaux with “unloading means capable of removing the material from said unloading section” of the instant invention. Appellants again assert that the die 16 does not “unload” the device in the usually accepted sense of the term. The polymer material is not being unloaded from the device, it is being extruded through a die to form a desired shape. As stated in column 4, line 44 “The outlet of the tubular component can moreover be equipped with a profiling head for the plasticised polymer, such as a round or flat die, so as to make it possible directly to produce hollow or solid shaped articles of any cross-section whatsoever. This profiling head is positioned after the insulating partition which provides electrical insulation of the tubular component.” It appears unlikely that an inventor considering making a microwave drying device would consider Chauffoureaux as a source for ideas on unloading material. Extruding shapes is very different from unloading a dryer.

Under MPEP Section 2143.01, “If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” If the “wide holes 13” or the die 12, of Chauffoureaux were removed, which would be necessary if the device were to function in a

manner similar to the instant invention, the Chauffoureaux device would no longer serve its purpose. That is, the waveguide tube would no longer fill up and the polymer would not be extruded.

The Examiner goes on to state that “Chauffoureaux shows every feature and structure as claimed except for the use of a plurality of waveguides for directing microwaves from the microwave generator into the treatment section.” Appellants assert, of course, that this is an incorrect assessment of Chauffoureaux for all of the reasons stated above. Appellants believe that Chauffoureaux does not show an unloading section, does not show a reciprocating ram in any manner which is evident from the patent, does not show a plurality of microwave guides within a treatment section, and does not show unloading means in any manner which may be equated with the unloading means of the instant invention.

The Examiner agrees that Chauffoureaux does not show a plurality of “...waveguides for directing microwaves from the microwave treatment section...,” but asserts that “Wear shows that it is well known in the art of conveyORIZED microwave dryer to use a plurality of microwave feed ports” etc. As always MPEP Section 2143 provides that combinations or modifications of prior art must meet the following criteria:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant’s disclosure.

First, Appellants assert that there is no “...suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.” There hardly ever is any type of explicit suggestion to combine or modify references so there must be found a motivation in the knowledge generally available to modify the reference or to combine reference teachings. As pointed out above, there appears to be no suggestion or motivation to even consider Chauffoureaux and Wear together. Chauffoureaux is an extruder and Wear is “An apparatus for

drying nodular, granular and other products includes a vessel containing an evacuated chamber and an endless belt conveyor that passes through the chamber.” (Abstract) The evacuated chamber and endless belt conveyor of Wear wouldn’t work at all in Chauffoureaux. You just can’t use a conveyor to extrude material and it wouldn’t make sense to evacuate a chamber which is plumb full of plasticised polymer. Therefore, there is absolutely no suggestion or motivation to combine Chauffoureaux and Wear. They aren’t just apples and oranges, they are apples and bears.

Second, there is no reasonable expectation of success in combining references. As stated above, the conveyor in Wear just wouldn’t work in Chauffoureaux. The screw in Chauffoureaux might work in Wear, but Chauffoureaux is an extruder in which the material must completely fill up the chamber in order for the extruder to function. This absolutely would not work in Wear. In addition, forcing material through a die as shown in Chauffoureaux also wouldn’t work in Wear. Third, “...the prior art reference (or references when combined) must teach or suggest all the claim limitations.” As pointed out above, even if Chauffoureaux and Wear were combined they would not show all of the claim limitations of the instant invention. Chauffoureaux does not show an unloading section, does not show a reciprocating ram in any manner which is evident from the patent, does not show a plurality of microwave guides within a treatment section, and does not show unloading means in any manner which may be equated with the unloading means of the instant invention.

MPEP Section 2143.01 further indicates that “If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teaching of the references are not sufficient to render the claims prima facie obvious.” As pointed out above, the basic principle of operation of Chauffoureaux is as an extruder which pushes plasticised polymers through a die to create a shape. The basic principle of operation of Wear is to move material along an endless conveyor through a series of zones with ever decreasing energy applied to the material. The invention of Chauffoureaux would not work with a conveyor and would be much less efficient and might not work at all if less energy were added along the length of the giant waveguide processor. Wear would not work if the chamber were entirely filled as in Chauffoureaux or if the material were forced through a die.

Therefore, "...the proposed modification or combination would drastically change the principle of operation of the prior art invention being modified..."

As pointed out above MPEP Section 2143.01 and cases cited indicate that "The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination." This is, of course, always a difficult point for either a patent examiner or a patent practitioner to make; because it is nearly always pretty subjective. However, Appellants assert that, in this case, it is somewhat easier than on most occasions. The instant invention is intended to move material through a loading, treatment, and unloading section by using the motive power of a reciprocating ram.

Chauffoureaux discloses a screw to force material through a die. Wear discloses an endless conveyor belt for moving material beneath a series of microwaves with progressively less energy. There is no suggestion in the prior art that suggest the desirability of the combination. To paraphrase MPEP Section 2143.01, there is no teaching, suggestion, or motivation to combine Chauffoureaux and Wear found in either of the references or in the knowledge generally available to one of ordinary skill in the art.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear should not be based upon obviousness and the claim should be allowed.

(2) Is claim 2 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020)?

Claim 2 is basically claim 1 with outside air introduced into the microwave dryer, which passes over the material, and is removed from the microwave dryer. Without reiterating them, Appellants reassert all of the above arguments relating to claim 1 here. Appellants admit that the idea of passing a purge gas over a product to carry away vapor is not an original idea. However, claim 2 depends upon claim 1 and rejection of this claim based upon a combination of Chauffoureaux and Wear should not be based upon obviousness and the claim should be allowed.

(3) Is claim 3 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

Claim 3 is basically claim 1 where the treatment section may be tilted at an angle other than level to increase or decrease the flow rate of material through said treatment section.

The Examiner rejects this claim "...as being unpatentable over Chauffoureaux (US 4,003,554) and Wear et al (US 4,640,020), as applied to claims 1 and 2 above, and further in view of Gerling et al (US 4,326,114)."

For all of the reasons set out above, Appellants dispute the Examiner's assertion that "...Chauffoureaux combined with Wear shows every feature as claimed..."

The Examiner rejects the claimed feature that "...the treatment section may be tilted" in this claim as being anticipated by Gerling.

Appellants reassert all of the above referenced rules for rejecting claims, but will not reiterate them here. Appellants also reassert all of the above arguments against the combination of Chauffoureaux and Wear without repeating them here.

Appellants point out that in Gerling only the material transport tube is tilted to change the flow rate of material through the tube. The actual "oven" which contains the microwave emitters does not tilt and the tube rather than the "treatment section" tilts. In the instant invention, the treatment section is the transport medium and the material is in physical contact and communication with the material. In Gerling, only the tube tilts and the material in the tube is not in physical contact or communication with the part of the apparatus which includes the microwave emitters and enclosure. Appellants assert, therefore, that the inclinable treatment section of the instant invention is not obvious in light of Gerling.

Appellants assert that the basic concept of Gerling is very different from that of the instant invention and that far from disclosing all of the features of the instant invention actually teaches far, far away from the instant invention. The instant invention includes a loading section, a treatment section, an unloading section, and a reciprocating ram to move the material through these sections. In all cases all of the sections are in communication with each other. That is, the material to be treated is introduced into the loading section and then is pushed through the subsequent treatment and unloading section by the ram. The material is, therefore, physically in contact with all sections and the ram and the various sections are the actual transport medium for the material. The concept and the operation of the device in Gerling is the exact opposite. In Gerling a microwave transparent tube is the only transport medium for the material (coffee

beans) and the material never is in communication with or in physical contact with the so-called treatment section or unloading section.

Under MPEP Section 2141.02 “In determining the differences between the prior art and the claims, the question under 35 U.S.C. 103 is not whether the differences themselves would have been obvious, but whether the claimed invention as a whole would have been obvious.” Taken as a whole, the instant invention includes a loading section, a treatment section, and an unloading section which are the actual transport medium for the treated material. That is, there is no separate transport medium which is distinct from the physical sections. In Gerling, the transport medium is a tube and the material is never in physical contact with or in communication with the so-called treatment section. Taken as a whole, the instant invention is both treatment vessel and transport medium for the material. Taken as a whole, the invention in Gerling discloses a transport medium which is separate and distinct from the “treatment section.” Therefore, taking both inventions as a whole, Appellants assert that the differences between the instant invention and Gerling would not have been obvious to a person of ordinary skill in the field. A potential inventor standing in the shoes of the instant inventors at the time of the invention would invent a dryer which included some form of transport medium which was separate and distinct from the treatment section. That is, rather than the instant invention being obvious in light of Gerling, Gerling actually teaches strongly away from the instant invention.

Furthermore, the disclosure in Gerling indicates at several places that the turning and mixing of the coffee beans is accomplished by rotating the transport tube. Appellants assert that a person knowledgeable in the field would be lead by Gerling to invent or design a microwave dryer in which there is some means of stirring the material through rotation. The instant invention includes no elements which provide for stirring by rotation. Appellants assert that this is yet another indication that, rather than making the instant invention obvious in light of Gerling, Gerling actually teaches away from the instant invention.

Furthermore, there are indications in the specification of Gerling (see col. 2, line 45 et seq.) that a rotating screw conveyor, ram, or piston is undesirable. Gerling indicates that the very reason for the rotating tube in Gerling was because other methods of pushing coffee beans through a microwave dryer do not work. For example, continuous belt microwave equipment does not work for roasting coffee beans; “...due to lack of bean to bean contact...” Again, rather

than teaching toward the type of material movement device disclosed in Wear, Gerling teaches away from the use of such a device.

Third, there must be a reasonable expectation of success in combining references. As pointed out above, Gerling indicates that such a combination would not be a success, but would be a failure. The very reason for the invention in Gerling was because of the failure of conventional dryers using the types of motive power disclosed in Wear. Because the screw-feed mechanism in Gerling does not provide motive power to the material, it is difficult to envision a manner in which a ram or piston could be incorporated into Gerling to successfully provide for the transport of the coffee beans through the microwave dryer. Pushing the beans through the rotating, inclined tube would defeat the basic purpose of Gerling and result in obvious failure of the device.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

(4) Is claim 4 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

Claim 4 is basically claim 1 but where the loading section, the treatment section, and the unloading section are modular such that the length of the microwave dryer may be adjusted or the various sections stacked vertically to increase the effective length of the microwave dryer.

The Examiner also indicates that "...Gerling also shows the use of a modular construction to permit scale up or scale down such that the length of the microwave dryer may be adjusted to suit production requirement (see col. 8, lines 47-51)." Those lines say "This is conveniently set out in units of 1 to 5 which may be taken as the effective length of the tube in the cavity or as the approximate incremental increase in delivered microwave power to a total of 5 KW..." The lines prior to that starting at line 42 say "Several variables of different character have been overlaid and plotted against an arbitrary abscissa which can be considered either the length of travel through the roaster of the present invention or the incremental amount of input power delivered in appropriate units." Appellants assert that this does not describe any form of modular construction, but merely indicates that either the beans can be made to travel through a longer

tube or the power of the microwave increased. This argues away from any type of modular construction as it indicates increasing power or the length of the process tube rather than adding an additional modular unit.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

(5) Is claim 5 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

Claim 5 depends upon 2. This claim was rejected by the Examiner for the same reasons as those given above. Without reiterating them, the Appellants reassert all of the arguments above.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

(6) Is claim 6 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

Claim 6 depends upon claim 4. This claim was rejected by the Examiner for the same reasons as those given above. Without reiterating them, the Appellants reassert all of the arguments above.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

(7) Is claim 8 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

Claim 8 depends upon claim 4. This claim was rejected by the Examiner for the same reasons as those given above. Without reiterating them, the Appellants reassert all of the arguments above.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

(8) Is claim 9 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

Claim 9 depends upon claim 2. This claim was rejected by the Examiner for the same reasons as those given above. Without reiterating them, the Appellants reassert all of the arguments above.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

8. Conclusion

For all of the foregoing reasons, the applicant submits that the microwave dryer disclosed and claimed in the present application is not fairly taught by any of the references of record, taken either alone or in combination.

The Appellants submit that the rejection of claims 1-6, 8, and 9 is in error and should be reversed.

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Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

(8) Is claim 9 properly rejected under 35 U.S.C. 103(a) in view of Chauffoureaux (US 4,003,554) and Wear et al. (US 4,640,020), as applied to claims 1 and 2 in further view of Gerling et al. (US 4,326,114)?

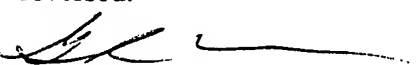
Claim 9 depends upon claim 2. This claim was rejected by the Examiner for the same reasons as those given above. Without reiterating them, the Appellants reassert all of the arguments above.

Therefore, based upon the above, rejection of this claim based upon a combination of Chauffoureaux and Wear as applied to claims 1 and 2 in further view of Gerling et al should not be based upon obviousness and the claim should be allowed.

8. Conclusion

For all of the foregoing reasons, the applicant submits that the microwave dryer disclosed and claimed in the present application is not fairly taught by any of the references of record, taken either alone or in combination.

The Appellants submit that the rejection of claims 1-6, 8, and 9 is in error and should be reversed.


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Dated: 02/09/2006

APPENDIX A

Claim 1: A microwave dryer for drying various materials including:

- (1) a loading section into which the material may be introduced using loading means;
 - (2) a treatment section which is in communication with the loading section;
 - (3) an unloading section which is in communication with the treatment section;
 - (4) a reciprocating ram within said loading section which is capable of pushing the material from said loading section into said treatment section and through said treatment section into said unloading section;
 - (5) a plurality of microwave guides within said treatment section capable of directing microwaves from a microwave generator into the material within said treatment section; and
 - (6) unloading means capable of removing the material from said unloading section;
- whereby material may be loaded into said loading section and pushed into said treatment section by the reciprocating ram; the material treated by microwaves within said treatment section; the treated material further pushed by said reciprocating ram into said unloading section; and the material removed from said unloading section by unloading means.

Claim 2: The microwave dryer of claim 1 in which outside air is introduced into the microwave dryer, passes over the material, and is removed from the microwave dryer.

Claim 3: The microwave dryer of claim 1 in which said treatment section may be tilted at an angle other than level to increase or decrease the flow rate of material through said treatment section.

Claim 4: The microwave dryer of claim 1 in which said loading section, said treatment section, and said unloading section are modular such that the length of the microwave dryer may be

adjusted or the various sections stacked vertically to increase the effective length of the microwave dryer.

Claim 5: The microwave dryer of claim 2 in which said treatment section may be tilted at an angle other than level to increase or decrease the flow rate of material through said treatment section.

Claim 6: The microwave dryer of claim 4 in which said treatment section may be tilted at an angle other than level to increase or decrease the flow rate of material through said treatment section.

Claim 8: The microwave dryer of claim 4 in which outside air is introduced into the microwave dryer, passes over the material, and is removed from the microwave dryer.

Claim 9: The microwave dryer of claim 2 in which said treatment section may be tilted at an angle other than level to increase or decrease the flow rate of material through said treatment section; and said loading section, said treatment section, and said unloading section are modular such that the length of the microwave dryer may be adjusted or the various sections stacked vertically to increase the effective length of the microwave dryer.